

REPORT OF BOARD OF REVIEW

Mann Gulch Fire

Helena National Forest - August 5, 1949

Missoula, Montana

September 29, 1949

## TABLE OF CONTENTS

	<u>Page</u>
Date of Accident. . . . .	1
Preliminary Investigation . . . . .	1
Formal Board of Review. . . . .	1
Membership of the Board of Review . . . . .	3
Technical Advisors . . . . .	3
Witnesses . . . . .	3
Invitation to Relatives . . . . .	5
History of the Mann Gulch Fire. . . . .	6
Name of fire . . . . .	6
Location . . . . .	6
Fuel type. . . . .	6
Weather. . . . .	6
Manning. . . . .	6
Discovery and reporting. . . . .	7
Action . . . . .	7
Large fire action. . . . .	11
Type and location of accident. . . . .	12
Men who lost their lives . . . . .	12
Survivors. . . . .	12
Conclusions . . . . .	13
Recommendations . . . . .	14
Appendix. . . . .	15

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SAFETY  
Mann Gulch Fire  
8/5/49

Missoula, Montana  
September 29, 1949

### Date of Accident

On August 5, 1949, a crew of 16 firefighters, 15 of them smokejumpers, became entrapped on the Mann Gulch forest fire on the Helena National Forest in Montana. As a result, 11 men were burned to death and 2 additional men died the next day from burns. Three members of the crew, one the foreman in charge, escaped without serious injury.

### Preliminary Investigation

By August 7, there was under way an investigation of the catastrophe, headed by the Chief of the Division of Fire Control and the Safety Officer from the Office of the Chief, Forest Service in Washington. Later Chief Watts designated a special board to review the findings of these investigators and otherwise to make the best possible determination of the circumstances contributing to the tragedy.

### Formal Board of Review

On September 26, the Board of Review assembled at Missoula, Montana, the headquarters of the Forest Service, Region One, in which the Helena National Forest is located. After a short organization session, the Board was flown on that day to the scene of the fire, accompanied by Regional Forester Hanson, Assistant Regional Forester Crocker, Foreman Dodge, Spotter Cooley, Ranger Jansson and Carl Gustafson, Chief of the Washington Office Division of Fire Control, who had conducted the preliminary investigation mentioned in the previous paragraph.

Several loops were flown around and across Mann Gulch, during the course of which significant points on the ground were pointed out and the topographic features and cover types were observed. At the completion of the aerial survey, the party was landed at Helena, whence it was taken by car and boat to the mouth of Mann Gulch. Approximately 3 hours was spent going over the ground, visiting the main points of significance, such as the parachutists' landing area, the equipment dump and the area where the deaths occurred. Ranger Jansson and Foreman Dodge explained the location and behavior of the fire and their respective actions as the various points were visited. A close-up view of topographic, surface and cover conditions was obtained.

During the next several days hearings were held at the Regional Forester's office in Missoula, during the course of which all key witnesses were heard. In keeping with the Chief's charge to the Board, particular attention was given to matters having a bearing on the following questions:

1. Were the weather conditions on August 5 of a character that would make the employment of smokejumpers unusually hazardous?
2. Was there available near the fire a suitable landing area, and was such an area selected?
3. Were the general topographic and cover conditions, and the fire behavior at the time of jumping, of such nature as would render unwise the placement of a crew where it was placed?
4. Was there delinquency on the part of the fire overhead to warn the crew of known impending danger?
5. Was there a failure of judgment or leadership on the part of the foreman due to insufficient training or otherwise?
6. Had the crew members been trained in the various phases of firefighting, including escape techniques?

In its report, the Board proposes to present:

- A. A brief history of the action on the fire having a significant relationship to the matters under review.
- B. Its conclusions concerning the questions listed above.
- C. Its recommendations as to measures which it believes may be helpful in guarding against similar occurrences in the future.

Membership of the Board of Review

- C. M. Granger, Assistant Chief, Forest Service, in Charge of National Forest Administration - Chairman
- H. D. Cochran, Chief, Division of Personnel Management, Office of the Chief, Forest Service
- Jay H. Price, Regional Forester, North Central Region
- Lawrence K. Mays, Assistant Regional Forester, in Charge, Division of Operation, Pacific Northwest Region
- J. Malcolm Loring, Forest Supervisor, Chelan National Forest, Pacific Northwest Region

Technical Advisors

- C. A. Gustafson, Chief, Division of Fire Control, Office of the Chief, Forest Service
- Francis Lufkin, Smokejumper Foreman, Chelan National Forest, Pacific Northwest Region (Advisory Smokejumper Foreman)

Witnesses

- J. Robert Jansson, District Ranger, Canyon Ferry District, Helena National Forest, Northern Region
- Arthur D. Moir, Jr., Forest Supervisor, Helena National Forest, Northern Region
- Frederick M. Fite, Regional Fire Dispatcher, Division of Fire Control, Northern Region
- Ralph L. Hand, in Charge of Fire Planning, Division of Fire Control, Northern Region
- Favre L. Eaton, Assistant Forest Supervisor, Helena National Forest, Northern Region
- Earl E. Cooley, Parachute Project Administrative Assistant ( Fire Technician) Division of Fire Control, Northern Region
- Elmer P. Bloom, Photographer (Motion Picture), Division of Information and Education, Northern Region
- Kenneth Huber, Pilot, Johnson Flying Service (Government contractor), Missoula, Montana

Robert W. Sallee, Smokejumper-Fireman, Parachute Project, Division of Fire Control, Northern Region

Walter B. Rumsey, Smokejumper-Fireman, Parachute Project, Division of Fire Control, Northern Region

R. Wagner Dodge, Foreman of Parachute Squads, Parachute Project, Division of Fire Control, Northern Region

Sidney E. McLaughlin, Regional Personnel Officer, Division of Personnel Management, Northern Region

Fred I. Stillings, Parachute Project Administrative Officer, Division of Fire Control, Northern Region

Clyde D. Blake, Assistant Regional Training and Safety Officer, Division of Personnel Management, Northern Region

Seth Jackson, Safety Officer, Division of Personnel Management, Chief's Office

Ralph S. Space, Assistant Chief, Division of Fire Control, Northern Region

Percy D. Hanson, Regional Forester, Northern Region

LaVaughn Beaman, Regional Fiscal Agent, Northern Region

## Invitation to Relatives and Points Raised

An invitation was extended to relatives of the victims living in Missoula and Kalispell, Montana, to appear before the Board if they wished to do so. The only one who availed himself of this opportunity was Mr. Henry Thol, who appeared before the Board for approximately one hour the morning of September 29.

The principal points made by Mr. Thol were:

1. The jump should not have been made at that time of day in an area presenting the topographic conditions and character of fuel which existed there, because it should have been evident to those in responsible positions that a blow-up might take place at any moment which would engulf the entire Mann Gulch area.
2. The jump having been made, Dodge should have taken his crew out of the area by the shortest route over the ridge at the time he rejoined the crew after contacting Harrison, instead of proceeding toward the river.
3. Dodge's plan of attacking the fire on the lower flank on the Mann Gulch side nearest the river was wholly impractical, because it would have been impossible to hold the fire on the slope where it was at the time.
4. The assertion in the Chief's letter of August 30 to Senator Murray that the fire was not spreading rapidly at the time of the jump was incorrect, because Thol regarded the increase in the size of the fire from nothing in evidence at 11:25 a.m., to an estimated area of 50 to 60 acres at 3:10 p.m., as rapid spread.
5. Dodge's action in setting the escape fire was not effective as a means of salvation for the crew, because the crew was not close enough to Dodge to have his purpose explained to them in time; but on the other hand, the escape fire actually impeded or frustrated the efforts of at least some of the men to escape over the ridge.
6. Thol challenged the statement in letter of August 30 from the Chief of the Forest Service to Senator Murray, that the members of the crew were seasoned firefighters. He pointed out that many of them had certainly had experience only on small fires.
7. Thol contended that the jump spot was ahead of the fire rather than on the flank, as asserted in the letter of August 30 from the Chief of the Forest Service to Senator Murray.

It is the feeling of the Board that all these contentions have been fully weighed and are covered in the Board's conclusions.

## History of the Mann Gulch Fire

(This factual history is based upon a report prepared by the regional forester, supplemented and confirmed by a preliminary investigating committee headed by C. A. Gustafson, Chief, Division of Fire Control, from the Washington Office, and by testimony before the Board of Review.)

1. Name of fire: Mann Gulch Fire, Helena National Forest, Montana. August 5 to August 10, 1949.
2. Location: The fire was located in the "Gates of the Mountains" wild area (roadless area) just east of the Missouri River, some 20 miles north of Helena, Montana. The fire started in the NE $\frac{1}{4}$ NE $\frac{1}{4}$  Sec. 19, T. 13 N., R. 2 W, Montana Principal Meridian, at a point near the top of the ridge between Mann and Meriwether Gulches. The general area is steep and jagged on the Meriwether side and is said to be one of the roughest areas east of the Continental Divide. The exposure is generally northwest. The point of origin of the fire was accessible from the road end at Hilger Landing, just off U. S. Highway 91, thence by a 6-mile motorboat trip to Meriwether campground at the mouth of Meriwether Gulch, thence about a 1-hour hike on a trail over rough terrain.
3. Fuel type: At the point of origin the fuel type consisted of a dense stand of 6- to 8-inch diameter Douglas fir and some ponderosa pine poles. In the pole stand were occasional large Douglas fir and ponderosa pine trees. This type merged into one consisting of larger timber, mainly Douglas fir with stringers of ponderosa pine on the lateral ridges. The ground cover in the openings and in the less dense timber was a mixture of grass and weeds of medium density.  
  
At the point of disaster the tree cover consisted of stringers of scattered young ponderosa pine trees with occasional over-mature ponderosa pine trees. The ground cover or understory which predominated was bunchgrass with some cheatgrass.
4. Weather: The day the fire started a temperature of 97 degrees was recorded at Helena. At the Canyon Ferry Ranger Station, 20 miles from the fire, the following was recorded at 5 p.m.: humidity 22 percent, wind 16 miles per hour, fuel moisture 5.9 percent. These factors indicated a burning index of 74, with 100 as the maximum which could be measured. Reports from other locations gave wind direction and intensity as variable, which also indicated bad burning conditions about the time of the blow up. Fire danger on August 4 was 16 which indicated a very low rate of spread potential the day the fire started.
5. Manning. The planned fire organization on the Helena National Forest, as indicated by the fire danger, was in place. In addition to the lookout detection system, the forest maintained a complementary air-detection patrol.



Mann Gulch was observed from the air between 5 and 7 p.m. on August 4.  
The fire was discovered.

Discovery and reporting: The fire was first reported by Don Barker, lookout on Colorado Mountain, some 30 miles away. He reported it to the fire dispatcher in Helena at 12:25 p.m., August 5. The fire was also observed by District Ranger J. Robert Jansson at the same time. He had just returned to Helena from an air-detection patrol flight and noticed the smoke from the airport. He flew over the fire at 12:55 p.m., with Ranger Alternate Hersey and a pilot. The fire was then estimated to be about 50 acres in size and smoking strongly. Another smoke, later designated as the York fire, was discovered and scouted during this flight. It was located about 9 miles south of the Mann Gulch fire.

Action: Upon returning to Helena at 1:30 p.m., Jansson discussed the fire situation with Supervisor Moir. They mutually agreed to order smokejumpers because of the difficulty of getting local ground forces to the fire rapidly. Jansson, as soon as he reached the airport, also requested that 50 local firefighters be sent to the fire. The original request to the fire desk in Missoula was for 25 smokejumpers. Due to the extremely rough topography of the general area and the seriousness of the fire weather, the best over-head available was selected for this mission. Because of the lack of adequate airplane transportation, only 16 men were sent. (Planes were servicing other fires in the region and were not immediately available. A Douglas C-47 plane can carry only 16 equipped jumpers.)

They left Missoula at 2:30 p.m. and reached the fire locality at 3:10 p.m. One man became ill enroute, so only 15 men jumped. Following routine procedure, before any jumper left the ship, the spotter and foreman carefully observed the fire, the unburned fuel, the geography and fire conditions while circling the fire. The wind at this time maintained itself steadily, blowing the fire towards the top of the ridge and nearly parallel with it. It apparently had maintained this course since the fire started, as indicated by the directional spread of the fire. This was parallel to Mann Gulch. The contemplated jump was considered to be of routine nature. It was not different from the normal day-by-day action of the smokejumper organization. The jump spot was agreed upon by Spotter Cooley and Foreman Dodge as suitable and safe. The fire was then about 50 to 60 acres in size.

The personnel jump and cargo dropping were completed by 4:08 p.m. The plane was unable to contact the Helena National Forest by radio, thus making it necessary for Spotter Cooley to report the execution of the jump by telephone to the Helena office at about 5:15 p.m., after returning to Missoula.

In the meantime, Jansson had left Helena for the fire at 2:20 p.m. with 10 men. He was followed by Ranger Alternate Hersey and 9 men. Due to water transportation difficulties, these men did not reach Meriwether campground, the nearest boat landing point to the fire, until about 4:30 p.m. Jansson

instructed Hersey to take the crew and "proceed up Mann Gulch trail, break out on top of the ridge between Mann Gulch and Meriwether, and to hold as much of the fire as possible on the ridge." Jansson then went down river to scout the fire. There was too much smoke to see anything from the river, so he left the boat and started walking up Mann Gulch at 5:02 p.m. He walked up to where the fire had crossed to the north of the gulch in two places. He thought he heard voices above him and continued up the gulch in an effort to determine the source. He listened further and concluded it was not voices he had heard. The fire at this time became so hot and was spreading so rapidly that he was forced to turn back at about 5:20 p.m., and discovered the fire had cut him off from below. He had to go through the fire to save himself. He fainted from holding his breath while running through the fire, but fortunately recovered a short time later outside the fire and proceeded to Meriwether.

Smokejumper Foreman Dodge's statement shows the men landed successfully in the bottom and near the head of Mann Gulch shortly after 3:50 p.m., with the exception that Dodge received a minor elbow injury. The jump spot was about a half mile from the northeast corner of the fire. The cargo (tools, water, and food) landed without damage except for the radio. This was made inoperable when the chute failed to open. (It is not possible to say whether or not lack of radio had any effect on subsequent action.) The smokejumpers' cargo and gear were assembled at the camp site located below the jump area by 5 p.m.

Concerning the fire at that time, Smokejumper Robert Sallee says, "I took a look at the fire and decided it wasn't bad. It was burning on top of the ridge and I thought it would continue on up the ridge. I thought it probably wouldn't burn much more that night because it was the end of the burning period and it looked like it would have to burn down across a little saddle before it went up hill any more."

The assembling of the cargo and the time involved, along with Sallee's statement, indicate no undue concern by the men over their immediate safety.

Recreation and Fire Prevention Guard Harrison had been instructed by Jansson that morning to start a patrol by 11 a.m. and to return and report to the Canyon Ferry Ranger Station from the Meriwether Camp by 3:30 p.m. Evidence shows Harrison probably tried to radio to Canyon Ferry and Missoula about the fire at 12:15 p.m. but was unsuccessful, thus delaying detection by 10 minutes. According to Dodge's verbal statement made later, Harrison said he had left Meriwether in accordance with instructions, proceeded along his patrol route and observed the fire. He then returned to Meriwether Station, tacking a note on the door reading, "Gone to the fire. Jim." He then proceeded to the fire. He was heard shouting near the fire by Foreman Dodge at about 5 p.m. Dodge, thinking it necessary to find out the reason for the shouting, instructed Squad Leader Hellman to get the crew equipped and follow him to the fire. Dodge proceeded alone, in advance of his crew, and met Harrison near the top of the ridge at the head of the fire a few minutes later.